

Listing of Claims

The following listing of claims replaces all prior versions.

1.-13. (Canceled)

14. (Currently amended) A vertical-cavity surface-emitting laser (VCSEL), comprising:

a substrate;

a distributed Bragg reflector formed over the substrate and including a plurality of semiconductor material layers separated by air gaps;

an active region formed over the distributed Bragg reflector, the active region including a current confinement region and a tunnel junction;

an air gap located adjacent the active region;

a second reflector formed over the active region;

a conductive layer located between the air gap and the second reflector;

electrical contacts associated with the active region and the distributed Bragg reflector;

where the distributed Bragg reflector includes a support layer to support the layers of semiconductor material; and

an additional set of electrical contacts associated with the conductive layer, the additional set of electrical contacts configured to receive an electrical signal and alter the light output wavelength of the VCSEL by causing the conductive layer to move in response to the electrical signal resulting in a tunable VCSEL.

15. (Original) The VCSEL of claim 14, wherein the semiconductor material is indium phosphide (InP).

16. (Original) The VCSEL of claim 14, wherein the semiconductor material is chosen from the group consisting of any material in the indium phosphide (InP) material system.

17. (Original) The VCSEL of claim 14, further comprising an additional

semiconductor material layer formed between the active region and the second reflector.

18. (Canceled)

19. (Original) The VCSEL of claim 14, wherein the second reflector is an air gap supported distributed Bragg reflector.

20. (Original) The VCSEL of claim 14, wherein the second reflector is a dielectric distributed Bragg reflector.

21. (Original) The VCSEL of claim 14, wherein the support layer is a regrowth of the semiconductor material.

22.-31. (Canceled)